

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



Ag 84Ab

# 317

science  
and  
FOOD FOR  
FREEDOM

U.S. DEPARTMENT OF AGRICULTURE  
BUREAU OF PLANT INDUSTRY  
JUL 12 1953  
WASHINGTON, D.C.



# science and FOOD FOR FREEDOM



Half the men on earth are badly fed or close to starvation. So, let's talk about food. Not about what **you** ate for breakfast. But about what **he** ate—or didn't eat. **He** is halfway round the world from you, but **he** is hungry—and that puts him right next door. For hunger now shapes the world you live in. The long shadow of hunger and famine darkens the trail that less developed nations (like his) must follow to freedom. Hungry men make hungry nations.

The problem is food—or rather not enough food. Not enough food growing in his part of the world. Not enough for today's hunger. Tomorrow, more food will grow, but so too will hunger grow as yet another child is born.

This hungry child, if he lives, grows into a hungry man. **He** and his hungry neighbors have needs they can never fill. And the nations they live in cannot take their place in our free world without help.

You have helped, already, by sending him part of your own harvest. And you will send more.

But we—you and your government working together—have found a better way. This better way helps people to help themselves. We find and try out new ways to raise more food or better food. Or how to kill the bugs that demand a share. Then, we show him (the hungry one) how to use these new ways to grow bigger crops.



And yet another hungry child is born—to grow into a hungry man.



And so, we send him food and know-how—both for freedom. With your help—and his self help—his tomorrow can be as bright as yours.

Abundant food—ours through the science of agricultural research—lets us help others. Abundant know-how—through science, too—lets us show others how to help themselves.

Sometimes, we send wheat or soybeans made a new way into familiar, but higher protein, foods. More often, we send our wheat or corn the way it is at harvest. In the last 10 years, we have shared more than 140 million tons of food with the hungry people of more than a hundred countries around the world.

It is the same with our abundant experience. It goes abroad in different forms. Sometimes, we demonstrate in foreign lands the ways that have helped us. More often, we show visitors these ways in our own fields and research laboratories.

We are using our abundance in food and experience to fight against hunger. And we will go on helping others to keep their freedom. But everyone who is hungry cannot be fed until the farmers in every country have found their own ways to make their land rich, their crops big, and their freedom secure.



With your help—and his self help—his tomorrow could be as bright as yours.

# What we do . . .

In recent years, we have sold more and more of our abundant food in foreign lands. Three-fourths of this food was paid for in American dollars. The other fourth we gave away or sold to countries that did not have dollars to pay us with—we were paid with their available rupees and pesos. And we use these rupees and pesos to help ourselves and to help others. Indian rupees support studies of food and fodder crops, while Colombian pesos pay for plant disease work. All help bring freedom to the world.

India always has trouble growing enough food for her millions. Worse years have followed bad ones. For several of these years, we sent India a half million tons of grain each month. To help out in her latest trouble, the worst drought in this century, we increased this by 50 percent.

This grain came from the rolling hills of eastern Washington and Idaho and the plains of Kansas and the Dakotas. Our farmers plowed and planted, weeded and watered, hoped and harvested. They made a rich soil richer with the right fertilizers—found by agricultural research. They broke a deep soil with new plows—shaped by research. They planted good seeds—chosen by research. They saved their crops from grasshoppers with better sprays—invented by research. Agricultural research touched every step of the road from farm to flour.

In war-torn Viet Nam, rice is always the main dish on a scanty table.

But, in the mountains near Ban-Me-Thuot, hungry villagers now eat a food that is strange to them. It is bulgur, an ancient food we found a new, better way to make.

In the days of the Bible, bulgur was a favorite food in the Middle East, as it is today. Immigrants brought it to us.

We cook and dry kernels of wheat. Then, we take off the outer layers of bran and crack the kernels. The result is bulgur. Bulgur is the color of toast and rich in wheat flavor. It cooks in about 20 minutes, and soaks up juices easily.

Our research laboratories worked out this new way to make bulgur. We tested it and tasted it. We puffed it and pressed it. We cooked it and canned it. In the past 3 years, our wheat millers have made four hundred million pounds of it.

Fried or frozen, chopped or chipped, ground or grated—most foods change shape before we eat them. The change is to make them look better, taste better, ship better, or keep better. Sometimes all four. And agricultural research looks for new and cheap ways to do these things.

Our hungry neighbor lives far away. His weather is hot and his trains are slow. Food for him needs a special touch to make it keep until he can eat it. We look for—and find—ways to do this, too.

Our scientists help export our experience by teaching in foreign agricultural colleges. They also teach students from foreign lands who come here to study in American colleges.

During the past year, 300 of our scientists and technicians went to 39





foreign lands to help grow more food. They took with them our abundant know-how, tested and proved in 100 years of agricultural research.

At the same time some of the world's best foreign scientists did research paid for by more than 775 grants of foreign money, that we got from selling American food in hungry nations. Public Law 480, passed by the Congress, provided for the use of this money where we sold the food.

The foreign scientists did their research in 30 nations on every continent except our own. These grants so far add up to about \$48 million in foreign money. The things we learn from this research will help grow more food in the nations where the research is done—and the knowledge gained also will help us.

Our agricultural research has—

- Helped grow a new millet that gives nearly twice as much grain as India's best local varieties.
- Helped Vietnamese farmers grow four times as much corn in 4 years.
- Protected millions of cattle in four West African countries against a dread disease, rinderpest.

- Developed a way for hungry villagers to make their own soybean flour, in five easy steps.

- Made possible eradication of one of the world's worst insect pests, the malaria mosquito.

- Found a new hybrid corn that gives twice as big a crop on a hundred thousand African acres.

Our scientists are working now in India to help that country cut down the birthrate of marauding sacred cattle. To prevent conception by these cattle, Indians have begun using a plastic spiral (intrauterine device) tested on cows at the Agricultural Research Center, Beltsville, Md.

The Middle East is a part of the world where controlling insects once meant driving them from the fields with horns, sticks, fire, or magic spells. In 1951, we were asked to help fight the locust plagues that have come each year since time began. We brought airplanes, chemicals, and know-how—our own magic. We showed the people how to help themselves with surveys, quarantines, and control programs of their own. Millions of people in the hungry Middle East now eat the food that locusts used to get.



Agricultural research . . . helped Vietnamese farmers grow four times as much corn in 4 years.

Agricultural research . . . brought chemicals and know-how to help fight the locust plagues.



# What we can do

What we are doing now is making a start toward helping to feed a hungry world. But many problems are still ahead.

Seeds are a bright promise not yet kept. And we need to make this promise even more bright. We need seeds for better wheat and rice, better sorghum and millet, better chickpeas and soybeans, and better corn. For seeds are most of what we eat. They are almost all of what **he** eats.

To bring these better seeds near this bright promise, we need better fertilizer. And, especially, more fertilizer. More fertilizer on the fields of hungry nations.

We need to learn how to control (and then get rid of) some of the worst livestock diseases, such as African swine fever and foot-and-mouth disease.

Our studies in Africa have found that one hog with African swine fever can give it to another. Scientists in Spain are looking for fast ways to tell when a hog has the fever. When we find out how to do this, maybe we can get rid of the disease.

The recent outbreaks of foot-and-mouth disease in Europe are a threat to raising cattle anywhere in the world.

Research on these two diseases, and other animal diseases of the world, is done in foreign countries and at our Agricultural Research Service Plum Island Animal Disease Laboratory, Greenport, N.Y.

We can raise more food in many parts of the world if we can kill some insects. These are the insects that eat crops, kill livestock, and bring sickness and death to man. Our agricultural

scientists have proven ways to control most of these pests—

- They developed ways to kill mosquitoes, and by doing this saved many men from malaria and yellow fever.
- They also got rid of the screwworm flies in our country by using sterile insects. This same way can be used against screwworm flies in Central and South America.
- A team of our researchers in Africa is nearing its goal in studying ways to sterilize tsetse flies. These are the flies that carry sleeping sickness to humans and nagana to livestock.
- Our entomologists are working with the World Health Organization all over the world to find diseases that can be used against insects that carry human disease.
- And this Nation already has a wealth of experience in controlling insect pests that destroy crops while they are in the field, being shipped, and being stored.

We are making a start toward feeding a hungry world—but many problems are still ahead.



But, the world has always had more hungry men than it could feed.

One solution for this problem is to make familiar foods more nutritious. Studies are pointing to new kinds of rice that have more protein and give a bigger crop.

Another solution is to find new ways of turning present crops into familiar foods—to suit the Oriental taste we found new ways of making soybeans into soup stock (miso), uncured cheese (tofu), and fried chips (tempeh).

A third solution is to find new sources of protein and get the hungry

people of the world to eat them. This may mean showing the Vietnamese housewife how to use bulgur, making drinks and soup from full-fat soy flour for Taiwanese children, or helping the Thai farmer grow a crop new to him—for instance, corn, a good source of protein, for his own hogs and for export.

Hungry men can plan ways to raise more food only after they have counted their own fields. They need to know their own resources. Our scientists are working with the space program to

Agricultural research . . . can find new sources of protein for the hungry people to eat. WURLD wheat, rich in vitamins and protein, is such a food.



Agricultural research . . . finds new ways of turning present crops into familiar foods—and ferments soybeans for fried chips (tempeh).







Agricultural research . . . finds new foods. Any villager can use simple machinery to make soy flour for drinks or soup. Soak soybeans overnight, then boil them for 10 minutes. Spread them out to dry. Crack them, take off the hulls, and grind the soybeans into flour.

make this easier. Special devices in satellites will help us survey our fields; on a cooperative basis, these devices are available to survey fields in developing nations that request their use.

We hope these devices will tell us—

- About the soils. Are they salty, acid, or alkaline? Are they poor or good for another crop?
- About the plants. Are they corn or wheat, grass or tree? Are they healthy or sick, whole or insect eaten? Will the harvest be big or small?
- About the fields. Are they desert dry or rice-field wet? Are they clear or rocky, flat or on edge?

If we are to help feed more and more people, the need for soil and water is urgent. The need becomes even greater in the tropics as new lands are used to raise crops and cattle. Once they control the tsetse fly, for example, Africans can raise cattle in large areas where tall grass, shrubs, and trees now hold soil and water on the land. If heavy grazing—or row cropping—takes off this cover, loss of soil and water could become a serious problem.

Some of these world problems are only partly solved. We still need to help with—

- Crop and livestock marketing, processing, and shipping.
- Irrigating and draining for better use of the soil and water we have.
- Testing soil and adding fertilizer that the crop needs.
- Storing grain and protecting the stored grain from molds and insects, such as the khapra beetle.
- Controlling weeds that use available water and plant food that would otherwise be used in growing crops.

But most of all, we need to talk about food. About what **he** will eat. For in our tomorrow—and his—must be the food to bring freedom from hunger for all.







Prepared by

AGRICULTURAL  
RESEARCH  
SERVICE

Washington, D. C.

ISSUED MAY 1967  
SLIGHTLY REVISED  
FEBRUARY 1968



AGRICULTURE 2000